LBNL Responses to RWQCB Comments

October 18, 2004

LBNL Responses to Comments from *Michael Bessette Rochette* of RWQCB San Francisco Bay Region Groundwater Protection Division) dated September 13, 2004 to Salvatore Ciriello of Department of Toxic Substances Control
Subject: Draft RCRA Corrective Measures Study Report for Lawrence Berkeley National Laboratory, dated July 2004. Berkeley, Alameda County. File No. 2199.9026 (MBR)

Item	Page/Para	RWQCB Comment	LBNL Response
General Comments		1) The Department of Energy (DOE) has proposed regulatory-based media cleanup standards based on corrective action objectives including the protection of the potential drinking water supply beneficial use for groundwater. However, based on Resolution 88-63, this corrective action objective protecting groundwater as a potential drinking water supply is only proposed for specific areas of Berkeley Lab where well yields exceed 200 gallons per day. From a review of Figures 2.2-1 and 2.2-2 depicting estimated well yields from the upper and lower geologic units and the statement on page 20, "Therefore, areas where groundwater is present solely in the Great Valley Group, the Orinda Formation or the Mixed Unit are considered to not represent potential sources of drinking water", it appears that proposed areas where the corrective action objectives include the drinking water supply are very limited.	
		Water Board staff request DOE provide a site-wide geological map, with cross sections, specifically delineating the areas where the corrective action objective of protecting groundwater as a potential drinking water supply is and is not proposed. Also include all contaminated soil areas and all contaminated groundwater plumes.	*Agree.* Berkeley Lab will provide a site-wide geologic map and cross sections showing areas where groundwater is/is not proposed for protection as a potential drinking water supply, and showing areas where soil and groundwater COCs exceed MCSs.
		Furthermore, DOE has identified hydrogeologic units that have well yields less than 200 gallons per day and has proposed that the potential drinking water beneficial use in these units is not applicable. This non-drinking water evaluation is also proposed for areas where a higher yielding upper hydrogeologic unit is underlain by a lower yielding hydrogeologic unit of less than 200 gallons per day. Using this upper/lower assessment is problematic since the most significant amounts of contamination are in the upper unit with higher yield and basing cleanup standards on characteristics of the relatively less contaminated lower unit is inappropriate.	*Disagree.* The *Draft* CMS Report does not propose a non-drinking water evaluation for areas where a contaminated higher yielding upper hydrogeologic unit is underlain by a contaminated lower yielding hydrogeologic unit of less than 200 gallons per day. In addition, the CMS Report does not base cleanup standards on characteristics of the relatively less-contaminated lower unit in locations where contaminants are primarily present in upper units.

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General Comments (cont'd.)		2) In general, Water Board staff is in agreement with the recommended corrective measure alternatives for the groundwater units where the drinking water beneficial use is a corrective action objective; however, Water Board staff recommends the CMS be revised to incorporate the development of a subsequent Groundwater Monitoring and Management Plan. This document should include, at a minimum, identification of the vertical and lateral extent of current VOC contamination plume, a proposal for perimeter groundwater monitoring wells to assure that migration beyond current plume margins does not occur, a proposal for specific surface water monitoring, and a proposal of Berkeley Lab future management controls to prevent any potential risks exposures associated with contaminated groundwater.	Text will be added to the CMS Report stating that a Groundwater Monitoring and Management Plan will be prepared as part of the Corrective Measures Implementation phase of the Corrective Action Process (CAP). The text will state that specific plan elements will include: a description of the vertical and lateral extent of current VOC contamination plumes, a listing of specific perimeter groundwater monitoring wells that will be used to monitor potential migration beyond current plume margins, a description of specific surface water monitoring requirements, and a description of Berkeley Lab management controls that will be used to reduce potential risks from exposures associated with contaminated groundwater.

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General Comments (cont'd.)		3) DOE has based the development of risk-based media cleanup standards for Lawrence Berkeley National Laboratory (Berkeley Lab), in part, on institutional land use controls. However, the institutional land use is not defined, nor are the permitted or un-permitted activities defined. The text should be revised to address this deficiency.	A section will be added to the text defining institutional land use following the definition presented in Section 3 of the Berkeley Lab Human Health Risk Assessment (HHRA), which encompasses continued use of Berkeley Lab as a research laboratory. The exposure assumptions used to develop the risks estimated in the HHRA are based on this definition. A separate discussion will indicate the applicability of land use restrictions to specific areas of Berkeley Lab. This discussion will indicate the following: a. In all areas where groundwater COC concentrations are less than regulatory-based groundwater MCSs (MCLs), no land use restrictions associated with the CAP will be applicable. b. In all areas where groundwater COC concentrations exceed regulatory-based groundwater MCSs (MCLs), land use restrictions would be implemented as follows: • Extraction of groundwater for domestic, industrial, or agricultural use would be prohibited unless it is treated to the required standards. • Development of residential facilities would be prohibited unless subsequent site-specific studies documenting that risks to residential receptors were below levels of concern were submitted to, and approved by, the DTSC. • Institutional land use would be permitted without restriction, except for areas where groundwater or soil COC concentrations exceed the upper-limit risk-based MCSs (i.e., theoretical ILCR>10^{-4}, HI>1). For areas exceeding the upper-limit risk-based MCSs (i.e., theoretical ILCR>10^{-4}, HI>1), development of institutional facilities would be prohibited unless a mitigation and monitoring plan was developed to ensure that COC exposures contributing to risks were below levels of concern. Mitigation and monitoring plans would be submitted to DTSC for review and approval.

Specific Comments

Item	Page/Para	RWQCB Comment	LBNL Response
1	**Page xi**	What type of land-use is the land cost of $100/square foot based on?	The statement pertaining to a land cost of $100/square foot will be deleted.
2	**Page 20, Second paragraph**	The statement "Therefore, areas where groundwater is present solely in the Great Valley Group, Orinda Formation or Mixed Unit are considered to not represent potential sources of drinking water" is too broad and is not consistent with State policy defining drinking water sources.	The sentence will be deleted.
3	**Page 30, Section 3.3, First paragraph**	Groundwater monitoring wells proposed as superfluous for monitoring compliance and approved by the Water Board shall be "properly destroyed." This issue should be addressed in the recommended Groundwater Monitoring and Management Plan.	The following sentence will be added to the text: "Groundwater monitoring wells that are considered superfluous will be identified as such in the Groundwater Monitoring and Management Plan or in other documentation submitted to the Water Board, and will be properly destroyed after receiving Water Board approval".
4	**Page 31, Section 3.4, Third paragraph**	Revise text here and in all other references, stating that a determination of technical impracticability of groundwater cleanup requires Water Board approval.	It is understood that the Water Board provides review and comment to DTSC regarding approval of specific actions pertaining to groundwater. However, it is Berkeley Lab's understanding that DTSC retains approval authority for such actions, including Determinations of Technical Impracticability. Based on this understanding, the following sentence will be added to the text: "A Determination of Technical Impracticability requires approval of the DTSC".
5	**Figures**	In addition to the figure requested in General Comment 2, Water Board staff requests an additional Site-wide Map showing all soil and groundwater areas of concern evaluated in the CMS including the various Module boundaries.	A figure showing the features requested in the comment will be added to the report.